

WHAT IS CLAIMED IS:

1. Electron beam writing equipment comprising:  
an electron source; an electron optics system  
irradiating for scanning an electron beam emitted from  
5 said electron source on a sample via deflection means  
having at least two different deflection speeds and an  
objective lens to form a desired pattern on said  
sample; a stage mounting said sample; a mark for beam  
correction provided on said stage; an electron detector  
10 detecting a backscattered electron, a secondary  
electron or a transmission electron obtained by  
irradiation of said electron beam; a function moving  
said electron beam by high speed scanning with said  
deflection means to repeat formation of a patterned  
15 beam; a function moving said electron beam on said mark  
for beam correction by low speed scanning with said  
deflection means in synchronization with one cycle of  
said repetition; and a function detecting a  
backscattered electron or a secondary electron emitted  
20 from said mark for beam correction and near it by said  
low speed scanning or a transmission electron  
transmitted through said mark for beam correction to  
correct the position or the deflection distance of said  
electron beam or blanking time from said detected  
25 result.

2. The electron beam writing equipment  
according to claim 1, wherein said electron beams are  
multi beams having plural electron beams arrayed at a

predetermined pitch, and said plural electron beams are used to perform correction.

3. The electron beam writing equipment according to claim 2, wherein the adjacent electron  
5 beams of said multi beams are moved in parallel to form said patterned beam.

4. The electron beam writing equipment according to claim 2, further comprising means comparing the detected results of said plural electron  
10 beams.

5. The electron beam writing equipment according to claim 1, wherein said deflection means has a deflector for high speed scanning and a deflector for low speed scanning.

15 6. The electron beam writing equipment according to claim 1, wherein said patterned beam has separately provided plural areas.

7. The electron beam writing equipment according to claim 1, wherein said patterned beam is  
20 formed in a deflection area of substantially  $2\mu\text{m}$  square.

8. Electron beam writing equipment comprising:  
an electron optics system irradiating for scanning plural electron beams arrayed at a predetermined pitch on a sample via deflection means having plural  
25 deflectors having at least two different deflection speeds and an objective lens to form a desired pattern on said sample; a stage mounting said sample; a mark for beam correction provided on said stage; and an

electron detector detecting a backscattered electron, a secondary electron or a transmission electron obtained by irradiation of said electron beam, wherein said deflection means has a first deflector for high speed scanning and a second deflector for low speed scanning, said plural electron beams are moved in parallel by high speed scanning with said first deflector to form a patterned beam, said plural electron beams are moved in parallel on said mark for beam correction by low speed scanning with said second deflector in synchronization with formation of said patterned beam, and a backscattered electron or a secondary electron emitted from said mark for beam correction and near it by said low speed scanning or a transmission electron transmitted through said mark for beam correction is detected to correct the position or the deflection distance of said electron beam or blanking time from said detected result.

9. An electron beam writing method comprising the steps of: irradiating an electron beam emitted from an electron source on a sample via an electron optics system having deflection means having at least two different deflection speeds and an objective lens to form a desired pattern on said sample; high speed scanning said electron beam using said deflection means to repeat formation of a patterned beam; low speed scanning said electron beam on a mark for beam correction provided on a stage mounting said sample

with said deflection means in synchronization with one cycle of said repetition; detecting a backscattered electron or a secondary electron emitted from said mark for beam correction and near it by said low speed scanning or a transmission electron transmitted through said mark for beam correction; and correcting the position or the deflection distance of said electron beam or blanking time from said detected result.

10. The electron beam writing method according to claim 9, wherein said electron beams are multi beams having plural electron beams arrayed at a predetermined pitch, and said plural electron beams are used to perform correction.

11. The electron beam writing method according to claim 10, wherein the adjacent electron beams of said multi beams are moved in parallel to form said patterned beam.

12. The electron beam writing method according to claim 10, further comprising means comparing the detected results of said plural electron beams.